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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/849,783	05/05/2001	Michael Neal	DEM1P006	9893
36088	7590	02/01/2008	EXAMINER	
KANG LIM			VAN DOREN, BETH	
3494 CAMINO TASSAJARA ROAD #436			ART UNIT	PAPER NUMBER
DANVILLE, CA 94506			3623	
			MAIL DATE	DELIVERY MODE
			02/01/2008	PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	09/849,783	NEAL ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	BETH VAN DOREN	3623	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

1)  Responsive to communication(s) filed on 31 October 2007.

2a)  This action is **FINAL**.                    2b)  This action is non-final.

3)  Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## **Disposition of Claims**

4)  Claim(s) 1-17 and 19-36 is/are pending in the application.  
4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.

5)  Claim(s) \_\_\_\_\_ is/are allowed.

6)  Claim(s) 1-17 and 19-36 is/are rejected.

7)  Claim(s) \_\_\_\_\_ is/are objected to.

8)  Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

9)  The specification is objected to by the Examiner.

10)  The drawing(s) filed on \_\_\_\_\_ is/are: a)  accepted or b)  objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)  The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)  Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a)  All    b)  Some \* c)  None of:  
1.  Certified copies of the priority documents have been received.  
2.  Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3.  Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1)  Notice of References Cited (PTO-892)  
2)  Notice of Draftsperson's Patent Drawing Review (PTO-948)  
3)  Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date 20071107.

4)  Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.  
5)  Notice of Informal Patent Application  
6)  Other: Requirement for Information

## **DETAILED ACTION**

### ***Continued Examination Under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 10/31/07 has been entered.

Claims 1-4, 9-10, 15, 19-20, and 25-27 have been added. Claims 29-36 have been added. Claims 1-17 and 19-36 are pending. Examiner notes that a supplemental final was mailed on 11/26/2007. However, a courtesy copy of this office action was provided to applicant, as referred to by applicant on page 11 of the current remarks.

### ***Response to Amendment***

2. Applicant's amendments to claim 1 are not sufficient to overcome the 35 USC 101 rejections set forth in the previous office action. These rejections are reasserted below.

3. Applicant's amendments to the claims are sufficient to overcome the antecedent basis issues for claims 2-4, 9-10, 15, 19-20, and 25-27 but are not sufficient to overcome the other 35 USC 112, second paragraph, rejections set forth in the previous office action. These rejections are reasserted below. Further, new 35 USC 112, second paragraph, rejections have been established based on the current amendments.

### ***Claim Rejections - 35 USC § 101***

4. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

5. Claims 1-4, 9-10, 15, 19-20, and 25-27 are rejected under 35 U.S.C. 101 because it does not recite subject matter within one of the statutory classes. Claim 1 recites a series of engines (i.e. econometric engine, financial model engine, and promotional engine). Engines are portions of programs, and thus the body of claim 1 is construed as software per se. Claims 2-4, 9-10, 15, and 19-20 depend from claim 1 and therefore have the same deficiencies. Computer programs and software are merely a set of instructions capable of being executed by a computer. Without specific language stating that a computer or computer processor is actively executing the computer program/software, computer programs and software are not considered to be statutory processes or machines. Therefore, there must be some functional act performed by a computer or computer element on the software/computer program to impart statutory subject matter.

Therefore, it is respectfully submitted that claims 1-4, 9-10, 15, 19-20, and 25-27 are directed towards non-statutory subject matter.

***Claim Rejections - 35 USC § 112***

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claims 1-4, 9-10, 15, 19-20, 25-27, and 35-36 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 recites in the preamble a system, while the body of the claim recites a series of engines. It is unclear how a collection of engines, which are portions of computer programs, would amount to a system, since systems require a combination of hardware and software

elements. Therefore, it appears that the body of the claim does not match the limitations set forth in the preamble. Clarification is required.

Claims 2-4, 9-10, 15, 19-20, and 25-27 depend from claim 1 and therefore have the same deficiencies.

Further, claim 2 recites “a temporary price reduction optimizing engine configured to temporary price reduction prices”. It is not clear what the scope of this limitation is as it appears a word may have been omitted. Clarification is required. For examination purposes, examiner has construed this limitation as a temporary price reduction optimizing engine configured to optimize temporary price reduction prices.

Further, claim 27 recites “wherein the sales model created by the econometric engine includes Bayesian Shrinkage modeling”. It is not clear in this limitation whether the econometric engine utilizes Bayesian Shrinkage modeling to create the sales model, or if the sales model itself specifically contains Bayesian Shrinkage algorithms. Further, if it is that the sales model contains Bayesian Shrinkage modeling, it is not clear how this model interacts with the promotional engine. Clarification is required.

As per claim 35, claim 35 recites “the integer programming model with the following objective and appropriate restrictions on the variables”. However, the model that follows does not specify its objective, namely to minimize or maximize the value. Clarification is required. Further, examiner is unclear if the scope of the term “objective” is “objective function”. Clarification is required.

As per claim 36, claim 36 recites “the following objective”. It is unclear if the scope of the term “objective” is “objective function”. Clarification is required.

***Claim Rejections - 35 USC § 103***

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. **Claims 28-34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Boyd et al. (U.S. 7,072,848) in view of Dvorak (U.S. 7,155,402) in further view of LoPresti (“New SPSS Missing Value Analysis Option”).**

As per claim 28, Boyd et al. teaches a computer-implemented method for creating a promotional event calendar, useful in association with at least one store, the computer-implemented method comprising:

modeling sales as a function of price to create a sales model, wherein the sales model includes base price variable and promotional variable (See column 1, lines 60-67, column 2, lines 8-30, column 4, lines 9-20, 38-40, and line 63-column 5, line 3, and column 7, lines 1-20, wherein sales is modeled by the system considering price (historical purchases, current price, competitor price, promotional price) as well as promotion information (past, current, and proposed promotions and incentives));

modeling costs to create a cost model (See at least column 3, line 60, column 4, lines 15-20, and column 14, lines 44-58, disclosing a cost structure model and consideration of costs); receiving cost model and sales model (See abstract, figure 1A, column 2, lines 18-33, column 3, lines 52-65, column 4, lines 5-15, wherein the data is received);

analyzing a plurality of offers, a plurality of promotional events, conditions from at least one manufacturer, and constraints from the at least one store (See column 1, lines 60-67, column 2, lines 8-30, column 4, lines 63-67, column 5, lines 29-35, column 7, lines 1-25, column 13, lines 1-20, which disclose offers and promotions (incentives, but monetary and non-monetary). See also column 11, lines 60-67, column 14, lines 20-40, column 17, lines 10-30 and line 58, and column 20, lines 24-30, which discloses constraints at stores and manufacturers); and choosing promotional events by optimally matching offers with promotional events (See column 1, lines 60-67, column 2, lines 8-30, column 3, lines 35-45 and line 61, column 14, line 60-column 15, line 5 and lines 40-65, column 16, lines 43-55, wherein optimal promotional events are chosen).

However, while Boyd et al. discloses inputting historical and other data into the system (See column 2, lines 20-25, and column 4, lines 5-15) and while Boyd et al. discloses choosing promotional events (see above), Boyd et al. does not expressly disclose imputing variables with respect to input data or creating a promotional event calendar for the chosen promotional events.

Dvorak teaches creating a promotional event calendar for the chosen promotional events (See column 3, lines 20-30, column 4, line 63-column 5, line 15, column 11, lines 40-55, which discloses a promotional event causal calendar displaying promotional events). However, Dvorak does not expressly disclose imputing variables.

LoPresti discloses an imputed variable generator and imputing variable values in data sets when data is missing (See page 1, sections 1-2, and page 2, sections 1-2, wherein a data set is utilized for a study and missing data is imputed so the missing data can be replaced). However,

LoPresti et al. does not expressly disclose receiving and analyzing constraints from the at least one store wherein the constraints include a linear constraint and a nonlinear constraint.

Both Boyd et al. and Dvorak teach consideration of promotional events. Boyd et al. is specifically concerned with analyzing, evaluating, optimizing, and choosing promotions based on factors such as price, cost, constraints, etc. Dvorak teaches displaying such promotions on a calendar related to the vendors. It would have been obvious to one of ordinary skill in the art at the time of the invention to include a calendar for the optimally determined promotions of Boyd et al. in order to increase the value of the system output to the user by displaying it in a way for user insight. See column 2, lines 5-20, of Boyd et al. which discloses the importance of valuable insight gained from the promotion program.

Further, Boyd et al. discloses inputting data into the promotion program, where the data may not be as complete as desired. See at least column 2, lines 5-20, and column 4, lines 7-15. LoPresti specifically discloses using imputation to fill in missing values in a data set so that the data can be used. It would have been obvious to one of ordinary skill in the art at the time of the invention to use imputation on missing values in the input of Boyd et al. in order to increase the value and the accuracy of the analysis performed by creating a more useful data set for the study. See page 1, section 1, of LoPresti and column 2, lines 5-20, column 4, lines 7-15, of Boyd et al.

As per claim 29, Boyd et al. teaches wherein promotional events are subject to the conditions/constraints from the at least one store (See column 5, line 54, column 14, lines 20-40, column 15, lines 1-15, column 16, lines 5-14 and 43-55, and column 17, lines 1-30 and line 58). However, Boyd et al. does not expressly disclose a promotional event calendar or whether the presented constraints are linear or nonlinear.

Dvorak teaches creating a promotional event calendar for the chosen promotional events (See column 3, lines 20-30, column 4, line 63-column 5, line 15, column 11, lines 40-55, which discloses a promotional event causal calendar displaying promotional events). However, Dvorak does not expressly disclose linear or nonlinear constraints, nor does LoPresit.

Both Boyd et al. and Dvorak teach consideration of promotional events. Boyd et al. is specifically concerned with analyzing, evaluating, optimizing, and choosing promotions based on factors such as price, cost, constraints, etc. Dvorak teaches displaying such promotions on a calendar related to the vendors. It would have been obvious to one of ordinary skill in the art at the time of the invention to include a calendar for the optimally determined promotions of Boyd et al. in order to increase the value of the system output to the user by displaying it in a way for user insight. See column 2, lines 5-20, of Boyd et al. which discloses the importance of valuable insight gained from the promotion program.

Further, Boyd et al. discloses store constraints. Examiner takes official notice that it is old and well known in operations research to use linear and non-linear constraints. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to include that the constraints taught by Boyd et al. are linear and non-linear in order to more accurately perform the analysis by using known techniques for considering constraints.

As per claim 30, Boyd et al. teaches:

computing a score for each offer of the plurality of offers and each event of the plurality of promotional events, wherein each event include at least one type of promotional vehicle, and wherein each offer includes at least one promotional vehicle requirement (See column 1, lines 60-67, column 2, lines 8-30, column 4, lines 63-67, column 5, lines 29-35, column 7, lines 1-25,

column 13, lines 1-20, wherein promotional events are both financial and non-financial events and offers are the values of these event types. See also column 15, lines 1-20. See column 11, lines 20-35, column 21, lines 35-50, column 23, lines 20-26, which disclose vehicle considerations);

selecting a combination of offers from the plurality of offers, and events from the plurality of promotional events to form a subset of offers and events (See at least column 1, lines 60-67, column 2, lines 8-30, column 13, lines 1-20, column 15, lines 1-20, wherein combinations of offers and events are selected. See column 11, lines 20-35, column 20, lines 20-35, column 21, lines 35-50, column 23, lines 20-26);

reconciling the type of promotional vehicle with the promotional vehicle requirements for the offers and events within the subset of offers and events (See column 11, lines 20-35, column 21, lines 35-50, column 23, lines 20-26); and

utilizing the subset of offers and events, and reconciled type of promotional vehicle and promotional vehicle requirements to choose promotions (See column 1, lines 60-67, column 2, lines 8-30, column 3, lines 35-45 and line 61, column 14, line 60-column 15, line 5 and lines 40-65, column 16, lines 43-55, wherein optimal promotional events are chosen).

However, Boyd et al. does not expressly disclose a promotional event calendar and constructing such a calendar.

Dvorak teaches creating/constructing a promotional event calendar for the chosen promotional events (See column 3, lines 20-30, column 4, line 63-column 5, line 15, column 11, lines 40-55, which discloses a promotional event causal calendar displaying promotional events).

Both Boyd et al. and Dvorak teach consideration of promotional events. Boyd et al. is specifically concerned with analyzing, evaluating, optimizing, and choosing promotions based on factors such as price, cost, constraints, etc. Dvorak teaches displaying such promotions on a calendar related to the vendors. It would have been obvious to one of ordinary skill in the art at the time of the invention to include a calendar for the optimally determined promotions of Boyd et al. in order to increase the value of the system output to the user by displaying it in a way for user insight. See column 2, lines 5-20, of Boyd et al. which discloses the importance of valuable insight gained from the promotion program.

As per claim 31, Boyd et al. teaches wherein computing the score independently computes a value of each offer and a value of each event, and wherein the computing the score also links each product with one promotional vehicle type of the at least one promotional vehicle type (See at least column 2, lines 18-33, column 3, lines 45-51, column 5, lines 17-45, which discloses profits and revenues for a specified period for a promotion type. See column 1, lines 60-67, column 2, lines 8-30, column 4, lines 63-67, column 5, lines 29-35, column 7, lines 1-25, column 13, lines 1-20, wherein promotional events are both financial and non-financial events and offers are the values of these event types. See also column 15, lines 1-20. See column 11, lines 20-35, column 21, lines 35-50, column 23, lines 20-26, which disclose vehicle considerations).

As per claim 32, Boyd et al. teaches wherein selecting the combination of offers and events includes maximizing the sum of the values of the offers and events within the subset of offers and events, while adhering to the conditions from at least one manufacturer and the constraints from the at least one store (See also column 11, lines 60-67, column 14, lines 20-40,

column 17, lines 10-30 and line 58, and column 20, lines 24-30, which discloses constraints at stores and manufacturers. See also column 5, lines 45-55, column 13, lines 1-20, column 15, lines 35-62, and column 16, lines 15-45, which discloses maximizing profit based on selected promotions and offers).

As per claim 33, Boyd et al. teaches reconciling the type of promotional vehicle with the promotional vehicle requirements (See column 11, lines 20-35, column 21, lines 35-50, column 23, lines 20-26). However, Boyd et al. does not expressly disclose, nor does Dvorak or LoPresti, solving an integer problem.

Further, Boyd et al. discloses various mathematical algorithms for solving promotional optimization. Examiner takes official notice that it is old and well known in operations research to use inter programming to solve such problems. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to include inter programming in the mathematical algorithms of Boyd et al. in order to more accurately perform the analysis by representing the values by integers, thus more accurately modeling the true retail environment.

As per claim 34, Boyd et al. teaches setting the promotion levels of each product and computing the resulting profit over a promotional period (See at least column 2, lines 18-33, column 3, lines 45-51, column 5, lines 17-45, which discloses profits and revenues for a specified period).

However, Boyd et al. does not expressly disclose a promotional event calendar and constructing such a calendar.

Dvorak teaches creating/constructing a promotional event calendar for the chosen promotional events (See column 3, lines 20-30, column 4, line 63-column 5, line 15, column 11,

lines 40-55, which discloses a promotional event causal calendar displaying promotional events). However, Dvorak does not expressly disclose linear or nonlinear constraints.

Both Boyd et al. and Dvorak teach consideration of promotional events. Boyd et al. is specifically concerned with analyzing, evaluating, optimizing, and choosing promotions based on factors such as price, cost, constraints, etc. Dvorak teaches displaying such promotions on a calendar related to the vendors. It would have been obvious to one of ordinary skill in the art at the time of the invention to include a calendar for the optimally determined promotions of Boyd et al. in order to increase the value of the system output to the user by displaying it in a way for user insight. See column 2, lines 5-20, of Boyd et al. which discloses the importance of valuable insight gained from the promotion program.

Claim 1 is substantially similar to the combination of claims 28 and 29 and is therefore rejected using the same art and rationale set forth above. Boyd et al. further teaches engines and modules in a computing environment (See figure 1A and column 3, lines 35-65).

As per claim 2, Boyd et al. discloses wherein the promotional engine further comprises a temporary price reduction optimizing engine configured to optimize temporary price reduction prices after the promotional events and offers have been selected (See also column 5, lines 45-55, column 13, lines 1-20, column 15, lines 1-25 and 35-62, and column 16, lines 15-45, which discloses maximizing profit based on selected promotions and offers.).

As per claim 3, Boyd et al. does not expressly disclose and Dvorak discloses providing a support tool connected to the promotional engine wherein the support tool is configured to receive the promotional event calendar from the promotional engine and provide a user interface to a client, wherein the user interface provides the promotional event calendar to the client (See

figures 8-12, column 3, lines 20-30, column 4, line 63-column 5, line 15, column 11, lines 40-55, which discloses a promotional event causal calendar displaying promotional events).

Both Boyd et al. and Dvorak teach consideration of promotional events. Boyd et al. is specifically concerned with analyzing, evaluating, optimizing, and choosing promotions based on factors such as price, cost, constraints, etc. Dvorak teaches displaying such promotions on a calendar related to the vendors. It would have been obvious to one of ordinary skill in the art at the time of the invention to include a calendar for the optimally determined promotions of Boyd et al. in order to increase the value of the system output to the user by displaying it in a way for user insight. See column 2, lines 5-20, of Boyd et al. which discloses the importance of valuable insight gained from the promotion program.

As per claim 4, Boyd et al. discloses wherein the promotional engine calculates the value of offers and the value of promotional events by using the financial model and sales model and selects combinations of the offers and the promotional events (See column 1, lines 60-67, column 2, lines 8-30, column 4, lines 63-67, column 5, lines 29-35, column 7, lines 1-25, column 13, lines 1-20, wherein promotional events are both financial and non-financial events and offers are the values of these event types).

Claim 5 is substantially similar to the combination of claims 28 and 29 and is therefore rejected using the same art and rationale set forth above. Boyd et al. further teaches a computing environment (See at least figure 1A and column 3, lines 35-65) and determining the value of offers and promotional events and selecting combinations of the offers and promotional events based on the determined values (See at least column 1, lines 60-67, column 2, lines 8-30, column 13, lines 1-20, column 15, lines 1-20, wherein combinations of offers and events are selected.

See column 11, lines 20-35, column 20, lines 20-35, column 21, lines 35-50, column 23, lines 20-26).

As per claim 6, Boyd et al. wherein the creating of the sales model comprises:

creating a plurality of demand groups, wherein each demand group is a set of at least one product and wherein at least one of the demand groups is a set of at least two substitutable products and creating a sales model for each demand group (See column 5, lines 4-16, column 6, lines 25-45, column 7, lines 25-50, column 8, lines 10-30, and 45-62, and column 15, lines 40-64, wherein demand groups and market share is concerned, the groups centered around a product and competing product for a segment. This is modeled); and

creating a market share model for each product in each demand group (See column 7, lines 25-50, column 8, lines 10-30, and 45-67, and column 15, lines 40-64, wherein demand groups and market share is concerned, the groups centered around a product and competing product for a segment. This is modeled).

As per claim 7, Boyd et al. discloses the step of estimating net profit from the selected combination of offers and promotional events using the sales model and cost model (See at least column 2, lines 18-33, column 3, lines 45-51, column 5, lines 17-45, which discloses profits and revenues for a specified period).

Claim 8 recites equivalent limitations to claims 5-7 above and is therefore rejected using the same art and rationale applied above.

As per claim 9, Boyd et al. discloses wherein constraints from the at least one store, including inventory, and ad and display type incentives (See column 6, line 65-column 7, line 25, which discloses ad and display consideration. See column 5, line 54, column 14, lines 20-40,

column 15, lines 1-15, column 16, lines 5-14 and 43-55, and column 17, lines 1-30 and line 58, disclosing store constraints and inventory constraints). However, Boyd et al. does not expressly disclose that the constraint is at least one of display space capacity or ad space capacity determining user input constraints.

Dvorak discloses display space capacity (See at least column 4, line 63-column 5, line 15, which discloses scheduled displays and the inventory of products required to make the display look pleasing).

Both Boyd et al. and Dvorak teach consideration of promotional events, as well as displays at the stores where promotional events will occur. Boyd et al. is specifically concerned with analyzing, evaluating, optimizing, and choosing promotions based on factors such as price, cost, constraints, etc. Dvorak teaches displaying such promotions on a calendar related to the vendors. It would have been obvious to one of ordinary skill in the art at the time of the invention to include capacity considerations in the displays of Boyd et al. in order to increase the sales of the item by making the display pleasing to the customer. See at least column 4, line 63-column 5, line 15, of Dvorak.

As per claim 10, Boyd et al. discloses the constraint from the at least one store including an event type (See column 6, line 65-column 7, line 25, which discloses event types, as well as column 5, line 54, column 14, lines 20-40, column 15, lines 1-15, column 16, lines 5-14 and 43-55, and column 17, lines 1-30 and line 58).

Claims 11 and 13 recite equivalent limitations to claim 9 and are therefore rejected using the same art and rationale applied above.

Claims 12 and 14 recite equivalent limitations to claim 10 and are therefore rejected using the same art and rationale applied above.

Claim 15 is substantially similar to the combination of claims 29 and 33 and is therefore rejected using the same art and rationale set forth above

Claims 16 and 17 recite equivalent limitations to claim 15 and are therefore rejected using the same art and rationale applied above.

As per claims 19, 21, and 23, Boyd et al. teaches wherein the conditions from the at least one manufacturer include providing at least one of a promotional event and a specific amount of promotion (See column 5, lines 29-35, column 11, lines 60-67, column 14, lines 20-40, column 17, lines 10-30 and line 58, and column 20, lines 24-30, which discloses constraints the retailer receiving excess inventory and other manufacturer conditions).

As per claim 20, 22, and 24, Boyd et al. teaches conditions from the at least one manufacturer and promotional events for a competitor's product (See column 4, lines 45-32, column 7, lines 25-50, which discloses competitor considerations, the products they order, and their market size and share; this data on orders is obtained from a third party). However, none of Boyd et al., Dvorak, or LoPresti disclose that the conditions from the at least one manufacturer include not providing a promotional event for a competitor's product (i.e. the manufacturer provides competitor's their products).

Both Boyd et al. and Dvorak teach consideration of promotional events. Boyd et al. is specifically concerned with analyzing, evaluating, optimizing, and choosing promotions based on factors such as price, cost, constraints, etc. Examiner takes official notice that it is old and well known to provide market research on competitor's, such as who is provided them their

products. It would have been obvious to one of ordinary skill in the art at the time of the invention to include in considerations of whether or not the manufacturer is providing competitor's their products in order to increase the value of the system output to the user by including all relevant market input concerning competitors. See column 2, lines 5-20, of Boyd et al.

As per claims 25-26, Boyd et al. teaches modeling sales as a function of price to create a sales model, including inputting price and promotional considerations (See column 1, lines 60-67, column 2, lines 8-30, column 4, lines 9-20, 38-40, and line 63-column 5, line 3, and column 7, lines 1-20, wherein sales is modeled by the system considering price (historical purchases, current price, competitor price, promotional price) as well as promotion information (past, current, and proposed promotions and incentives)). Further, Boyd et al. discloses base prices (See column 14, lines 45-57). However, Boyd et al. does not expressly disclose, nor does Dvorak, imputing the variables.

LoPresti discloses an imputed variable generator and imputing variable values in data sets when data is missing (See page 1, sections 1-2, and page 2, sections 1-2, wherein a data set is utilized for a study and missing data is imputed so the missing data can be replaced). However, LoPresti et al. does not expressly disclose receiving and analyzing constraints from the at least one store wherein the constraints include a linear constraint and a nonlinear constraint.

Boyd et al. and Dvorak are combinable for the reasons set forth above. Boyd et al. discloses inputting data into the promotion program, where the data may not be as complete as desired. See at least column 2, lines 5-20, and column 4, lines 7-15. LoPresti specifically discloses using imputation to fill in missing values in a data set so that the data can be used. It

would have been obvious to one of ordinary skill in the art at the time of the invention to use imputation on missing values in the input of Boyd et al. in order to increase the value and the accuracy of the analysis performed by creating a more useful data set for the study. See page 1, section 1, of LoPresti and column 2, lines 5-20, column 4, lines 7-15, of Boyd et al.

As per claim 27, Boyd et al. teaches a sales model created by an econometric engine (See column 1, lines 60-67, column 2, lines 8-30, column 4, lines 9-20, 38-40, and line 63-column 5, line 3, and column 7, lines 1-20, wherein sales is modeled by the system considering price (historical purchases, current price, competitor price, promotional price) as well as promotion information (past, current, and proposed promotions and incentives)). However, none of Boyd et al, Dvorak, or Lo Presti expressly disclose that the sales model created includes Bayesian Shrinkage modeling.

Both Boyd et al. and Dvorak teach consideration of promotional events, and are combinable for the reasons discussed above. Boyd et al. is specifically concerned with analyzing, evaluating, optimizing, and choosing promotions based on factors such as price, cost, constraints, etc. Boyd et al. teaches optimization algorithms that include constraints. Examiner takes official notice that Bayesian Shrinkage algorithms are old and well known in the art as an efficient way for generating estimates. It would have been obvious to one of ordinary skill in the art at the time of the invention to use Bayesian Shrinkage modeling in the system of Boyd et al. in order to more efficiently select the best promotions using the provided inputs.

***Response to Arguments***

9. Applicant's arguments with regards to the rejections based on Cunningham et al. (U.S. 6,029,139) in view of Walser et al. (U.S. 2006/0161504) and in further view of LoPresti ("New SPSS Missing Value Analysis Option") have been fully considered, but are moot in view of the new ground(s) of rejection.
10. Applicant's arguments with regards to LoPresti ("New SPSS Missing Value Analysis Option") have been fully considered, but they are not persuasive. In the remarks, Applicant argues that (1) LoPresti does not expressly disclose an imputed variable generator, (2) under KSR, LoPresti is simple in scope and limited to imputing missing variables, instead of the highly specialized imputation of the present invention would arguably not yield a predictable result, (3) LoPresti teaches handling missing data, when the present invention goes much farther and imputes implied or hidden data which does not exist in the data set.

In response to arguments (1), (2), and (3), examiner respectfully disagrees. LoPresti was specifically relied on to disclose an imputed variable generator and imputing variable values in data sets when data is missing. On page 1, sections 1-2, and page 2, sections 1-2, LoPresti discloses that when using a data set for a study and data is missing, data is imputed so the missing data can be replaced. This is specifically important in the art rejection above, where the newly applied reference of Boyd et al. (U.S. 7,072,848), where data is input into the promotion program to study and evaluate promotions, where the data may not be as complete as desired. See at least column 2, lines 5-20, and column 4, lines 7-15. Examiner further notes that the claims do not specifically recite the "highly specialized imputation" in the claims or the features presented in the current remarks on pages 12-15. These features upon which applicant relies (i.e.

highly specialized imputation, implied or hidden data) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993). Therefore, in the broadest reasonable interpretation of the term imputation, LoPresti does teach and suggest the claim language.

***Conclusion***

11. This Office action has an attached requirement for information under 37 CFR 1.105. A complete reply to this Office action must include a complete reply to the attached requirement for information. The time period for reply to the attached requirement coincides with the time period for reply to this Office action.

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Dvorak et al. (U.S. 7,092,929) teaches promotional event calendaring and store level considerations for promotional events.

Cragun et al. (U.S. 5,774,868) teaches selection of sales promotions.

Lazarus et al. (U.S. 6,430,539) teaches modeling consumer financial behavior and selecting promotional offers for segments of consumers.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Beth Van Doren whose telephone number is 571-272-6737. The examiner can normally be reached on M-F, 8:00-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tariq Hafiz can be reached on 571-272-6729. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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January 25, 2008

  
BETH VAN DOREN  
PRIMARY EXAMINER

***Requirement for Information***

1. Applicant and the assignee of this application are required under 37 CFR 1.105 to provide the following information that the examiner has determined is reasonably necessary to the examination of this application.
2. Claims 35 and 36 in the instant applicant present specific objective functions for integer programming models. Examiner requests information, specifically regarding these models and their objective functions, in order to determine if the equations are specifically the applicant's own work. In response to this requirement, Examiner respectfully requests that the Applicant please provide a list of keywords that are particularly helpful in locating publications related to the disclosed art of integer programming and objective functions specifically in the art of promotions planning and calendaring. Please also provide the title, citation and copy of each publication that any of the applicants relied upon to develop the disclosed subject matter that describes the applicant's invention, particularly as to developing of the integer programming models objective function. For each publication, please provide a concise explanation of the reliance placed on that publication in the development of the disclosed subject matter.

Further, please provide copies of any publication which any of the applicants authored or co-authored and which describe the disclosed subject matter of integer programming and objective functions, specifically for promotions planning and calendaring. Also, in response to this requirement, please provide the names of any products or services that have incorporated the claimed subject matter.

3. In responding to those requirements that require copies of documents, where the document is a bound text or a single article over 50 pages, the requirement may be met by providing copies of those pages that provide the particular subject matter indicated in the requirement, or where such subject matter is not indicated, the subject matter found in applicant's disclosure.
4. The fee and certification requirements of 37 CFR 1.97 are waived for those documents submitted in reply to this requirement. This waiver extends only to those documents within the scope of this requirement under 37 CFR 1.105 that are included in the applicant's first complete communication responding to this requirement. Any supplemental replies subsequent to the first communication responding to this requirement and any information disclosures beyond the scope of this requirement under 37 CFR 1.105 are subject to the fee and certification requirements of 37 CFR 1.97.

5. The applicant is reminded that the reply to this requirement must be made with candor and good faith under 37 CFR 1.56. Where the applicant does not have or cannot readily obtain an item of required information, a statement that the item is unknown or cannot be readily obtained may be accepted as a complete reply to the requirement for that item.

6. This requirement is an attachment of the enclosed Office action. A complete reply to the enclosed Office action must include a complete reply to this requirement. The time period for reply to this requirement coincides with the time period for reply to the enclosed Office action.

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bvd  
1/28/08

  
TARIQ R. HAFIZ  
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